

IN THE CLAIMS:

Please amend claims 1, 5, and 6 as follows:

1. (Currently Amended) A singing voice synthesizing apparatus, comprising:
 - a singing voice information input device that inputs singing voice information for synthesizing a singing voice;
 - a phoneme database that stores voice synthesis unit data;
 - a selector that selects the voice synthesis unit data stored in the phoneme database in accordance with the singing voice information;
 - a timbre transformation parameter input device that inputs a timbre transformation parameter for transforming timbre, the timbre transformation parameter including a coefficient α indicating whether a singing voice is made to be feminine or masculine;
 - a mapping function generator that generates, in accordance with the coefficient included in the timbre transformation parameter, a mapping function defined by a following equation (1)
$$f_{out} = (f_s/2) \times (2 \times f_{in}/f_s)^\alpha \quad (1),$$
where f_{out} is an output frequency, f_s is a sampling frequency, f_{in} is an input frequency and α is the coefficient indicating whether the singing voice is made to be feminine or masculine;
 - and
 - a singing voice synthesizer that ~~adjusts~~ generates a spectrum envelope ~~generated~~ based on the selected voice synthesis unit data, transforms the generated spectrum envelope in accordance with the mapping function generated by using a local peak frequency of the spectrum envelope as the input frequency, and generates a synthetic singing voice of which character is changed by ~~transforming the voice synthesis unit data in accordance with the timbre transformation parameter~~ using the transformed spectrum envelope.

2. (Previously Presented) A singing voice synthesizing apparatus according to claim 1, further including a characteristic parameter output device that derives a characteristic parameter from the voice synthesis unit data selected by the selector and outputs the derived characteristic parameter, and wherein the singing voice synthesizer corrects the characteristic parameter in accordance with the timbre transformation parameter.

3. (Canceled)

4. (Previously Presented) A singing voice synthesizing apparatus according to claim 1, wherein the timbre transformation parameter input device includes a timbre transformation parameter adjuster that changes the timbre transformation parameter in a time axis.

5. (Currently Amended) A singing voice synthesizing method, comprising:

inputting singing voice information for synthesizing a singing voice;

storing voice synthesis unit data into a phoneme database in advance and selecting the voice synthesis unit data stored in the phoneme database in accordance with the singing voice information;

inputting a timbre transformation parameter for transforming a timbre, the timbre transformation parameter including a coefficient α indicating whether a singing voice is made to be feminine or masculine;

generating, in accordance with the coefficient included in the timbre transformation parameter, a mapping function defined by a following equation (1)

$$f_{out} = (f_s/2) \times (2 \times f_{in}/f_s)^\alpha \quad (1)$$

where f_{out} is an output frequency, f_s is a sampling frequency, f_{in} is an input frequency, and α is the coefficient indicating whether the singing voice is made to be feminine or masculine;

~~adjusting~~ generating a spectrum envelope ~~generated~~ based on the selected voice synthesis unit data ~~in accordance with the timbre transformation parameter;~~

transforming the generated spectrum envelope in accordance with the mapping function generated by using a local peak frequency of the spectrum envelope as the input frequency; and

generating a synthetic singing voice of which character is changed by ~~transforming the voice synthesis unit data in accordance with the timbre transformation parameter~~ using the transformed spectrum envelope.

6. (Currently Amended) A computer-readable storage medium having encoded thereon a singing voice synthesizing program including instructions which when executed by a computer causes:

inputting singing voice information for synthesizing a singing voice;

storing voice synthesis unit data into a phoneme database in advance and selecting the voice synthesis unit data stored in the phoneme database in accordance with the singing voice information;

inputting a timbre transformation parameter for transforming timbre, the timbre transformation parameter including a coefficient α indicating whether a singing voice is made to be feminine or masculine;

generating, in accordance with the coefficient included in the timbre transformation parameter, a mapping function defined by a following equation (1)

$$f_{out} = (f_s/2) \times (2 \times f_{in}/f_s)^\alpha \quad (1)$$

where f_{out} is an output frequency, f_s is a sampling frequency, f_{in} is an input frequency,
and α is the coefficient indicating whether the singing voice is made to be feminine or masculine;

adjusting ~~generating~~ a spectrum envelope ~~generated~~ based on the selected voice synthesis
unit data ~~in accordance with the timbre transformation parameter;~~

transforming the generated spectrum envelope in accordance with the mapping function
generated by using a local peak frequency of the spectrum envelope as the input frequency; and

generating a synthetic singing voice of which character is changed by ~~transforming the~~
voice synthesis unit data ~~in accordance with the timbre transformation parameter~~ using the
transformed spectrum envelope.

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